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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,846	08/25/2006	Masaharu Ueda	1551-0158PUS1	4142
2292 7590 01/06/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
FOGARTY, CAITLIN ANNE				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/590,846

Applicant(s)

UEDA ET AL.

Examiner

CAITLIN FOGARTY

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date 9/25/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1, 2, and 13 – 20 are pending where claims 1, 2, 13, and 17 have been amended. Claims 3 – 12 have been cancelled.

Status of Previous Rejections

2. The 35 U.S.C. 103(a) rejection of claims 1, 2, and 13-20 as being unpatentable over JP 2002-226914 has been withdrawn in view of the amendment filed October 23, 2008.

Information Disclosure Statement

3. The information disclosure statement (IDS) was submitted on September 25, 2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 2, and 13 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereafter JP '914) in view of the English machine translation of JP 11-350075 (hereafter JP '075).

With respect to the amended instant claim 1, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon with a similar composition to that of the instant invention. JP '914 teaches that the method comprises

finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 1.

JP '914 differs from instant claim 1 because the composition of the steel rail taught by JP '914 does not contain N as required by the amended claim 1. However, [0008] of JP '075 discloses a steel rail having a high content of carbon with an overlapping composition as seen in the table below.

Element	Instant Claims 1&2 (mass%)	JP '075 (mass%)	Overlapping Range (mass%)
C	0.85 – 1.40	0.60 – 1.20	0.85 – 1.20
Si	0.05 – 2.00	0.10 – 0.50	0.10 – 0.50
Mn	0.05 – 2.00	0.30 – 1.20	0.30 – 1.20
B	0.0001 – 0.0050	0.0001 – 0.0050	0.0001 – 0.0050
N	0.0060 – 0.0200	0.0060 – 0.0200	0.0060 – 0.0200
Cr	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00
Mo	0.01 – 0.50	0.01 – 0.20	0.01 – 0.20
Co	0.003 – 2.00	0.1 – 2.0	0.1 – 2.0
Cu	0.01 – 1.00	0.05 – 1.00	0.05 – 1.00
Ni	0.01 – 1.00	0.05 – 1.00	0.05 – 1.00
Ti	0.0050 – 0.0500	0.005 – 0.05	0.005 – 0.05
Mg	0.0005 – 0.0200	----	----
Ca	0.0005 – 0.0150	----	----
Al	0.0100 – 1.00	----	----
Zr	0.0001 – 0.2000	----	----
V	0.005 – 0.500	0.01 – 0.20	0.01 – 0.20
Nb	0.002 – 0.050	0.005 – 0.05	0.005 – 0.05
Fe + Impurities	Balance	Balance	Balance

It would have been obvious to one of ordinary skill in the art to use the composition of the steel of JP '075 in the method of JP '914 because the steel of JP '075 may also be used as a rail steel and the addition of nitrogen in the steel prevents the oxidation of the impurity level of aluminum in the steel (see [0013] of JP '075).

JP '914 in view of JP '075 differs from instant claim 1 because they do not specifically teach expression 1. However, [0009] of JP '914 teaches that the time

between rolling passes (S) is 10 seconds or less and that the surface temperature of the rail (T) is 900-1050°C. Therefore, JP '914 in view of JP '075 satisfies expression 1 if, for example, C is 0.85 and T is 900°C (therefore $CPT1=1.05$) because S may be less than 1.05.

In regards to amended instant claim 2, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon comprising finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which overlaps with the range recited in instant claim 2. JP '914 differs from instant claim 2 because the composition of the steel rail taught by JP '914 does not contain N as required by the amended claim 2. However, [0008] of JP '075 discloses a steel rail having a high content of carbon with an overlapping composition as seen in the table above. It would have been obvious to one of ordinary skill in the art to use the composition of the steel of JP '075 in the method of JP '914 because the steel of JP '075 may also be used as a rail steel and the addition of nitrogen in the steel prevents the oxidation of the impurity level of aluminum in the steel (see [0013] of JP '075).

JP '914 in view of JP '075 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less, the surface temperature of the rail (T) is 900-1050°C, and that the number of passes (P) is 2 or more. Therefore, JP '914 in view of JP '075 satisfies expression 2 if, for example, C is 0.85, T is 900°C, and P is 3 (therefore $CPT2=1.05$) because S may be less than 1.05.

Since the claimed compositional ranges of claims 1 and 2 either overlap or are within the ranges disclosed by JP '075, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed steel rail composition from the steel rail composition disclosed by JP '075 because JP '075 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

Regarding instant claims 13 and 17, JP '914 in view of JP '075 does not specifically teach the recited chemical relationship. However, the steel rail of JP '914 in view of JP '075 would satisfy the relationship if, for example, V is 0.05, Nb is 0.005, and N is 0.0060. In addition, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

With respect to instant claims 14 and 18, the abstract and [0009] of JP '914 disclose that immediately after the finish rolling step, the surface of the rail head is cooled at a cooling rate of 0.5-50°C./s until the surface temperature reaches 800-950°C. These ranges overlap with the ranges recited in instant claims 14 and 18.

In regards to instant claims 15, 16, 19, and 20, the abstract of JP '914 teaches that the steel rail is cooled to 800-950°C at a cooling rate of 0.5-50°C./s on the rail

surface and then subjected to natural cooling. These ranges overlap with the ranges recited in instant claims 15, 16, 19, and 20. Therefore, it would have been obvious to one of ordinary skill in the art to cool the surface of the rail head at a cooling rate of 2-30°C.s until the surface temperature reaches a desired temperature and then allow the rail to further cool at room temperature (natural cooling) because it is well known in the art to cool at a desired cooling rate first to a desired temperature and then allow the cooling to finish naturally at room temperature as evidenced by JP '914.

Since the claimed temperature ranges and cooling rates of claims 1, 2, and 13 – 20 either overlap or are within the ranges disclosed by JP '914, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed temperature ranges and cooling rates from the temperature ranges and cooling rates disclosed by JP '914 because JP '914 teaches the same utility (i.e. a method for producing a steel rail having a high content of carbon) in the whole disclosed range.

Response to Arguments

6. Applicant's arguments filed October 23, 2008 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

- a. Applicant submits that the Examiner has not appropriately resolved the *Graham* factors, including the factors of determining the scope and content of the prior art and ascertaining the differences between the prior art and the claims that are at issue.

b. Applicants respectfully submit that the present invention is distinct from JP '914 and that the Examiner is basing the Examiner's assertions on hindsight reconstruction. Applicants also submit that the Examiner has improperly applied hindsight reconstruction to reject the claims since to arrive at variables that can meet the requirements of Expression 1, the Examiner must select a specific temperature, rolling interval, and carbon content based on the present claims. The same is true for Expression 2.

c. JP '914 does not teach that its disclosed steel may contain nitrogen. Examiner's responses are as follows:

a. The Examiner believes that the above rejection has resolved the *Graham* factual inquiries.

b. The Examiner disagrees with Applicant that hindsight reconstruction was used in the previous rejection. The instant claims do not recite a specific maximum surface temperature of the rail head or a maximum rolling interval time. Therefore, the Examiner selected a specific temperature of 900°C (from Table 2 Steel 12 of the instant specification) and a carbon content of 0.85 which is within the range recited in instant claim 1 as an example. These values satisfied Expression 1 because $CPT1=1.05$ and S can be less than 1.05 as evidenced by Table 2 of the instant specification. Furthermore, the Examiner selected a number of rolling passes of 3 for Expression 2 which is within the range recited in instant claim 2. The chosen values of C, T, and P satisfied Expression 2

because CPT2=1.05 and S can be less than 1.05 as evidenced by Table 2 of the instant specification.

- c. See new 35 U.S.C. 103(a) rejection above.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CAITLIN FOGARTY** whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

CF